ABSTRACT OF THE DISCLOSURE

An object taking out apparatus capable of taking out randomly stacked objects with high reliability and low cost. An image of one of workpieces as objects of taking out at a reference position is captured by a video camera. Whole feature information and partial feature information are extracted from the captured image by a model creating section and a partial model creating section, respectively, and stored in a memory with information on partial feature detecting regions. An image of randomly stacked workpieces is captured and analyzed to determine positions/orientations of images of the respective workpieces using the whole feature information. Partial feature detecting regions are set to the images of the respective workpieces using the determined positions/orientations of the respective workpieces and information on partial feature detecting regions stored in the memory. Partial features of the respective workpieces are detected in the partial feature detecting regions using the partial feature information, and priority of taking out the workpiece is determined based on results of detection of the partial features. A robot is controlled to successively take out the object of the first priority using data of the position/orientation of the object of the first priority.